

NMCP COVID-19 Report #10: Friday, 01 May 2020

Prepared by: Tracy Shields, MSIS, AHIP <tracy.c.shields2.civ@mail.mil>

Reference Medical Librarian; Naval Medical Center Portsmouth, Library Services

Disclaimer: I am not a medical professional. This document is current as of the date noted above. While I make every effort to find and summarize available data, things are changing rapidly, with new research and potentially conflicting literature published daily. Best practice and evidence are constantly shifting during this international public health crisis.

Reports are biweekly, planned for Tuesdays and Fridays.

Statistics

Global 3,276,373 confirmed cases and 233,998 deaths in 187 countries/regions

United States top 5 states (Virginia is ranked 15th)

	TOTAL	NY	NJ	MA	IL	CA
Confirmed Cases	1,070,032	304,372	118,652	62,205	52,918	50,411
Deaths	NA*	NA*	NA*	NA*	NA*	NA*
Tested	6,231,182	900,636	247,918	275,647	269,867	625,337

[JHU CSSE](#) as of 1200 EDT Friday, 01 May 2020

*NA: not all data available at time of writing due to maintenance and disruptions in service.

Navy (Department of Defense)

	TOTAL	MIL	CIV	DEP	CTR
Cases	1,607	1,397	126	43	41
Hospitalized	19	8	5	0	6
Recovered	374	424	130	66	54
Deaths	8	1	5	0	2
Total*	2,289	1,822	261	109	97

*total = active + recovered + deaths

[DoD](#) dated 0500 EDT Thursday, 30 April 2020

<i>Virginia</i>	Total	Chesapeake	Hampton	Newport News	Norfolk	Portsmouth	Suffolk	Virginia Beach
Cases	16,901	256	119	12	204	170	175	396
Hospitalized	2,416	60	28	33	42	33	32	81
Deaths	581	7	1	9	3	7	13	14

[VA DOH](#) as of 1000 EDT Friday, 01 May 2020

Ripple Effects: Other Health and Wellness Issues Impacted by COVID-19

The current pandemic has far reaching effects beyond an individual's health and mortality associated with infection by the SARS-CoV-2 virus and COVID-19 disease. There are discussions by policy makers, thought leaders, and public health officials on other health impacts of the pandemic ([CHOP](#)). Topics include:

- mental health of frontline healthcare providers (see below) and individuals in quarantine
- amplification of healthcare disparities
- changes in access to and continuity of care for patients with chronic health conditions
- socioeconomic and psychosocial issues such as domestic violence, child maltreatment, and food insecurity (see report #9)

Mental Health (Healthcare Personnel)

May is Mental Health Awareness month, a movement to help "fight stigma, provide support, educate the public and advocate for policies that support people with mental illness and their families" ([NAMI](#)). This year, the theme is Tools 2 Thrive; the goal is to "provide practical tools that everyone can use to improve their mental health and increase resiliency regardless of the situations they are dealing with" ([MHA](#)).

Pandemic Impacts

Experiences from the SARS and H1N1 epidemics suggest significant psychological strain on healthcare professionals at the frontline of outbreaks ([Exp Ther Med](#)). Reasons for adverse psychological outcomes in healthcare personnel during crises like pandemics range from excessive workload/work hours, inadequate personal protective equipment, over-enthusiastic news, and feeling inadequately supported ([Asian J Psychiatr](#)).

The current COVID-19 pandemic may cause or aggravate fear, panic, stigma, and discrimination in individuals, even apart from mental health issues ([Int J Ment Health Nurs](#)). Beyond psychological health, general health and wellness is affected; a survey of COVID-19 frontline medical personnel in China found 36.1% had insomnia ([Front Psychiatry](#)).

Mental Health of Frontline Healthcare Workers

"As if exposure to the COVID-19 during the global pandemic was not enough, healthcare workers face another risk: burnout due to overstress in an increasingly burdened healthcare system" ([Psychiatry Res](#)).

One recent article states:

"As for health care providers themselves, the novel nature of SARS-CoV-2, inadequate testing, limited treatment options, insufficient PPE and other medical supplies, extended workloads, and other emerging concerns are sources of stress and have the potential to overwhelm systems. Self-care for providers, including mental health care providers, involves being informed about the illness and risks, monitoring one's own stress reactions, and seeking appropriate assistance with personal and professional responsibilities and concerns — including professional mental health intervention if indicated. Health care systems will need to address the stress on individual providers and on general operations by monitoring reactions and performance, altering assignments and schedules, modifying expectations, and creating mechanisms to offer psychosocial support as needed." ([NEJM](#))

Interventions

While there are numerous papers discussing the problem and the unmet need, there is little actual data on or evidence specific to this pandemic for what mental health support interventions should be done for healthcare personnel. There are calls for evidence-based self-help interventions to meet the urgent need of healthcare workers during the COVID-19 pandemic ([Lancet Psychiatry](#); [Psychol Med](#)).

One article presents an overview of psychological stress responses and proactive resilience strategies at the personal and organizational level. The authors describe a 'Battle Buddy' peer-support model based on the Army's program. "Early anecdotal evidence (including the experience of the authors) suggests that it is easy to implement and very beneficial" ([Anesth Analg](#)).

Another opinion paper suggests various micropractices – "highly actionable tools that require minimal time to learn and implement" – as a method of burnout prevention and emotional wellness. These micropractices include naming emotions, mindfulness moments during hand hygiene, asking yourself if you are hungry or hydrated, or writing down 3 good things you are grateful for ([J Am Coll Radiol](#)).

Support The Workers is an "international group of experts in disaster response, crisis psychology, high pressure decision-making and human performance and health under conditions of extreme stress" ([STW](#)). The collective has developed evidence-based 1-page briefing notes on mental health and adjacent issues relevant during the pandemic, including psychological safety, readiness, team dynamics, decision making, PTSD, moral injury, anxiety and fear, resilience, and other stressors ([STW](#)). Their website also has validated scales that can be used to monitor or assess psychosocial function of healthcare workers and other useful resources.

The Department of Veteran Affairs has developed a COVID Coach app to with a mood tracker and other tools to support self-care and overall mental health during the pandemic ([DeptVA](#)). For other sources of interest including apps and podcasts, see *Additional Resources* below.

Moral Injury

The concept of moral injury was first applied to military personnel ([PS Mag](#)) and defined as a wound that can occur when persons participate in, bear witness to, or fail to prevent acts that transgress their most deeply held moral beliefs ([Clin Psychol Rev](#)). It has since been applied to healthcare workers, where the phenomenon is often framed as burnout ([STAT](#) [burnout]).

The COVID-19 pandemic has heightened the concern of moral injury in non-military healthcare workers, who are strained and stressed by circumstances, may make difficult, gut wrenching decisions (e.g., who gets a ventilator and who doesn't), and see colleagues get ill and die ([STAT](#) [covid]).

There is little in the peer-reviewed literature that speaks to the moral injury of healthcare workers during this pandemic specifically. At the time of this writing, there are 2 articles that touch on the topic, and no published interventional studies in healthcare workers.

One article discusses potential opportunities at every level – individuals, teams, staff, and organizations – to support mental health and mitigate moral injury and PTSD during the pandemic ([Eur Heart J Acute Cardiovasc Care](#)). A similar article discusses risk factors for moral injury and offers recommendations in providing psychological support for clinicians and patients during and after the pandemic:

1. prioritize and make readily accessible psychological support for those in frontline roles
2. ask about potentially morally injurious events in anyone who is/was an essential worker during the pandemic and presenting with mental health difficulties
3. continue to provide mental health treatment such as telehealth or by phone, taking precautionary measures as needed
4. ensure vulnerable groups (e.g., domestic violence survivors, those with mental illnesses) continue to have access to care and support networks
5. encourage people to take practical steps to manage anxiety and use evidence-based coping resources ([Occup Med](#))

Grief

The COVID-19 pandemic is a source of grief for many who suffer primary losses of loved ones, patients, and colleagues or secondary losses like companionship, sexual intimacy, or loss of abilities or identity ([Brain Behav Immun](#)). Social/physical distancing and other restrictions of movement have canceled milestone events and other communal gatherings. The authors state: "the absence of ritual, such as funeral, often results in disenfranchised grief, and lacking social or cultural recognition impairs support resources that assist the grieving process" ([Brain Behav Immun](#)).

The pandemic is also causing a collective, anticipatory grief – a feeling of loss at our world changing, the loss of normalcy, the fear of economic toll, and the loss of connection (especially physical) with others ([HBR](#)).

Additional Resources

General

Mental Health America. Mental Health Month 2020 - Toolkit Download (accessed 30 April 2020). Link: <https://www.mhanational.org/mental-health-month-2020-toolkit-download>

- Includes: infographics; handouts and posters; social and other media materials.

Substance Abuse and Mental Health Services Administration. Disaster Technical Assistance Center (DTAC) (accessed 30 April 2020). Link: <https://www.samhsa.gov/dtac>

- Includes: crisis counseling and training program toolkit; links to behavioral health resources; webinars and podcasts.

University of California, San Francisco. Department of Psychiatry. Resources to Support Your Mental Health During the COVID-19 Outbreak (accessed 01 May 2020). Link: <https://psychiatry.ucsf.edu/coronavirus>

- Includes: webinar series for emotional well-being for healthcare providers; a video series on resilience; apps for wellness and mental health; information for families, older adults and caregivers; and practical resources for low-income and multilingual groups.

Apps – Meditation, Mindfulness, & Wellness

- Calm <https://www.calm.com/>
- Happify <https://www.happify.com/>
- Headspace <https://www.headspace.com/>
- The Mindfulness App <https://theminfulnessapp.com/>
- Mindfulness Coach https://www.ptsd.va.gov/appvid/mobile/mindfulcoach_app.asp
- Mindshift <https://www.anxietycanada.com/resources/mindshift-cbt/>
- PTSD Coach https://www.ptsd.va.gov/appvid/mobile/ptsdcoach_app.asp

Podcasts

Advances in Surgery – COVID19 Resources Center. Psychological support for HCPs podcasts (in collaboration with Support The Workers) (accessed 01 May 2020). Link: <https://covid19.aischannel.com/support-hcps>

Unlocking Us podcast, selected episodes:

- David Kessler and Brené on Grief and Finding Meaning from 31 March 2020. Link: <https://brenebrown.com/podcast/david-kessler-and-brene-on-grief-and-finding-meaning/>
- Brené on Anxiety, Calm + Over/Under-Functioning from 03 April 2020. Link: <https://brenebrown.com/podcast/brene-on-anxiety-calm-over-under-functioning/>

Summaries from Other Sources

[CEBM](#): Is there an association between exposure to air pollution and severity of COVID-19 infection? (29 April 2020)

"There is very limited data to date, and we found only one study which had adjusted for confounders, but emerging evidence suggests there may be a positive association between long-term exposure to ambient air pollution and COVID-19 mortality."

"These data might be of particular importance as international lockdown measures are eased, given the restrictions have caused a considerable fall in levels of air pollution."

"Public health measures to reduce air pollution can also prevent many avoidable deaths from non COVID-19 causes and so help lower the baseline demand on health services during the current pandemic."

[CEBM](#): What is the evidence for use of macrolide antibiotics for treatment of COVID-19? (28 April 2020)

"We identified three studies, two in vitro and one in vivo, assessing the use of macrolide antibiotics for the treatment of COVID-19. Each of these studies assessed treatment with azithromycin. The evidence from the in vivo study and one in vitro study suggest a possible synergy between azithromycin and hydroxychloroquine. However, the in vivo study had a small number of participants and was methodologically flawed; the findings must therefore be treated with caution. The two in vitro studies provided conflicting results regarding the activity of azithromycin alone against SARS-CoV-2; one found that azithromycin alone had activity against the virus, whilst the other found anti-SARS-CoV-2 activity only when azithromycin was combined with hydroxychloroquine."

"At present, there is insufficient evidence to recommend treatment with macrolides, alone or combined with hydroxychloroquine, for COVID-19 outside of research. Both macrolide antibiotics and hydroxychloroquine can increase the QT interval; combining these drugs may therefore result in cardiovascular harms. Clinicians may wish to use macrolide antibiotics to treat a bacterial super-infection that has complicated COVID-19, in line with local/national treatment protocols."

[CEBM](#): Covid 19 – Epidemic 'Waves' (30 April 2020)

This is less an evidence summary than a brief historical review of various subsequent 'waves' of outbreaks, epidemics, and pandemics in the context of the current worries of subsequent peaks of illness with COVID-19.

Selected Primary Literature

Recent (within the last 7 days of report date)

[JAMA](#): Second-Trimester Miscarriage in a Pregnant Woman With SARS-CoV-2 Infection (30 April 2020)

This research letter out of Switzerland describes a case of pregnancy loss during the second trimester in a 28-year-old obese, primigravida woman. After labor and vaginal birth of a stillborn infant, the placenta was tested and positive for SARS-CoV-2.

The authors note: "There was no evidence of vertical transmission, but absence of the virus is not surprising given the stage of fetal development and short time of maternal infection. Whether SARS-CoV-2 crosses the placental barrier warrants further investigation."

[The Lancet](#): Remdesivir in adults with severe COVID-19: a randomised, double-blind, placebo-controlled, multicentre trial (29 April 2020)

"Our study is the first randomised, double-blind, placebo-controlled clinical trial assessing the effect of intravenous remdesivir in adults admitted to hospital with severe COVID-19. The study was terminated before attaining the prespecified sample size. In the intention-to-treat population, the primary endpoint of time to clinical improvement was not significantly different between groups, but was numerically shorter in the remdesivir group than the control group, particularly in those treated within 10 days of symptom onset. The duration of invasive mechanical ventilation, although also not significantly different between groups, was numerically shorter in remdesivir recipients than placebo recipients."

"No statistically significant benefits were observed for remdesivir treatment beyond those of standard of care treatment. Our trial did not attain the predetermined sample size because the outbreak of COVID-19 was brought under control in China. Future studies of remdesivir, including earlier treatment in patients with COVID-19 and higher-dose regimens or in combination with other antivirals or SARS-CoV-2 neutralising antibodies in those with severe COVID-19 are needed to better understand its potential effectiveness."

[Nature](#): Aerodynamic analysis of SARS-CoV-2 in two Wuhan hospitals (27 April 2020)

"This study investigated the aerodynamic nature of SARS-CoV-2 by measuring viral RNA in aerosols in different areas of two Wuhan hospitals during the COVID-19 outbreak in February and March 2020. The concentration of SARS-CoV-2 RNA in aerosols detected in isolation wards and ventilated patient rooms was very low, but it was elevated in the patients' toilet areas. Levels of airborne SARS-CoV-2 RNA in the majority of public areas was undetectable except in two areas prone to crowding, possibly due to infected carriers in the crowd.... Although we have not established the infectivity of the virus detected in these hospital areas, we propose that SARS-CoV-2 may have the potential to be transmitted via aerosols."

[medRxiv](#)*: SARS-CoV-2 RNA Found on Particulate Matter of Bergamo in Northern Italy: First Preliminary Evidence (24 April 2020)

Per [Johns Hopkins Center for Health Security COVID-19 29 April Situation Report](#):

"The general consensus among COVID-19 experts continues to be that the primary method of SARS-CoV-2 transmission is via respiratory droplets; however the role of other modes of transmission remains under investigation. A study conducted in Italy (not yet peer reviewed) detected the presence of SARS-CoV-2 RNA in air pollution particles. The particulate matter that contributes to air pollution can be inhaled, potentially providing an additional mechanism for SARS-CoV-2 infection. This study did not evaluate the viability of the virus detected in the air pollution, nor did it assess the potential for this route of exposure to result in infection."

*bioRxiv and medRxiv are preprint servers: "[T]hese are preliminary reports that have not been peer-reviewed. They should not be regarded as conclusive, guide clinical practice/health-related behavior, or be reported in news media as established information."

ICYMI (older than the last week, not covered here previously)

[J Am Coll Cardiol](#): COVID-19 and Thrombotic or Thromboembolic Disease: Implications for Prevention, Antithrombotic Therapy, and Follow-up (15 April 2020)

"Herein, we review the current understanding of the pathogenesis, epidemiology, management and outcomes of patients with COVID-19 who develop venous or arterial thrombosis, and of those with preexisting thrombotic disease who develop COVID-19, or those who need prevention or care for their thrombotic disease during the COVID-19 pandemic."

Literature Trackers & Other Curated COVID-19 Collections

LitCOVID, an extension of PubMed, is a curated literature hub from the NLM for tracking up-to-date scientific information about SARS-CoV-2 and COVID-19 disease.

See: <https://www.ncbi.nlm.nih.gov/research/coronavirus/>

COVID-19 Primer is another way to track the latest research papers and see trends in topics related to the pandemic.

See: <https://covid19primer.com/dashboard>

NEW: A team (including medical librarian and expert searcher, Katie Lobner) at Johns Hopkins Bloomberg School of Public Health has developed the 2019 Novel Coronavirus research Compendium (NCRC); "teams rapidly curate and assess the literature on SARS-CoV-2 and COVID-19 to inform the public health community during this pandemic".

See: <https://ncrc.jhsph.edu/>

In Brief

A new report from the Center for Infectious Disease Research and Policy looks at lessons learned from pandemic influenza and what we might expect from COVID-19 ([CIDRAP](#)).

Deaths

Two studies suggest men are at greater risk for COVID-19; one study showed a risk of death 2.4 times higher in men, another showed advanced age and underlying illness lead to death in men but not women ([CIDRAP](#)).

Treatments & Vaccines

NIH's clinical trial of remdesivir, an antiviral developed by Gilead, shows promise in a preliminary analysis of data. Patients who received the drug had a 31% faster recovery time than those who received placebo ($p < 0.001$). Median time to recover was 11 days with the drug versus 15 days with placebo. Results also suggest a survival benefit with mortality rate of 8.0% with the drug compared to 11.6% with placebo ([NIAID](#)).

Scientists from Oxford's Jenner Institute are preparing large scale testing of a coronavirus vaccine in humans, with plans to get more than 6,000 people by the end of May ([NYT](#)).

With limited options for effective treatments in COVID-19 disease, many families are turning to social media to find recovered patients willing to donate blood for convalescent plasma therapy ([NYT](#)).

Effects on GME

"What will happen to residents, fellows who have lost training opportunities?" Well, it may depend on where they are doing their training ([MedPage](#)).

A recent medical school graduate worries that she won't be prepared to handle the mental health stresses of caring for COVID-19 patients or herself; she quotes her dean: "We're so focused on taking care of patients and providing quality care that absent from our education is how we take care of ourselves" ([MedPage](#)).

Long Form and In-Depth Articles

Why the coronavirus is so confusing – a guide to making sense of a problem that is now too big for any one person to full comprehend ([Atlantic](#))

Looking Ahead

Planned for upcoming reports: mental health awareness and support; special topic on ethics during pandemics; COVID-19 podcasts; and any other submitted requests.

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Statistics

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VA DOH: Virginia Department of Health. COVID-19 in Virginia, updated daily. Link: <http://www.vdh.virginia.gov/coronavirus/>

VHHA: Virginia Hospital and Healthcare Association. Virginia Hospital COVID-19 Dashboard (updated daily) Link: <https://www.vhha.com/communications/virginia-hospital-covid-19-data-dashboard/>

Ripple Effects: Mental Health (Healthcare Personnel)

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